"Croonian Lecture" of the Royal Society in 1883. These were, in 1895, republished in a collected form by his friends and pupils in America, under the title of "Physiological Papers." And he sent out into the States a number of trained physiologists, fired with his own enthusiasm, who are continuing to advance the science, and one of whom has succeeded him at Baltimore. He also found time to write expository works, and his "Human Body," "Briefer Course" and "Elementary Course," deservedly became very popular in the States.

Upon his first appointment he had the charge of the whole subject of animal biology, and since he was himself more distinctly a physiologist, it was almost his first duty to secure or train up a colleague who should devote himself to morphology. Martin early saw the worth of one of his students, W. K. Brooks; to him he gradually entrusted morphological matters, and thus prepared not only the way for a separate chair of Zoology, but also the man to fill it.

He was elected into the Royal Society in 1885; he also received the title of Hon. M.D. from the University of Georgia.

Martin married in 1879 Mrs. Pegram, the widow of an officer in the Confederate army; but there was no issue, and in 1892 his wife died.

Even before his wife's death his health had begun to give way; and after that event, he became so increasingly unfitted for the duties which his own previous exertions had raised to a very great importance, that in 1893 he resigned his post.

After his resignation he returned to this country, for he had never become an American citizen, and was looking forward to being able, with improved health, to labour in physiological investigations, either at his old University or elsewhere in England. But it was not to be. Though he seemed at times to be improving, he had more than one severe attack of illness, and never gained sufficient strength to set really to work. During the past summer he visibly failed; and while he was striving to recover his strength by a stay in the quiet dales of Yorkshire, a sudden hæmorrhage carried him off on October 27, at Burley-in-Wharfedale, Yorkshire.

Having been for so long a stranger to this country, Martin was, personally, but little known in English scientific circles; in America, however, not in Baltimore only, but in many other parts of the States, especially among the younger physiologists, he has left behind him a memory which will not soon pass away; while those who knew the brightness of his early days in this country, will always hold him in affectionate remembrance. And it may here, perhaps, be granted to myself to say that I can never forget what he was to me in my early days at Cambridge, and the sadness which I am feeling in the thought that he now, as well as Balfour, is no more, is mixed with pride at having been a help to two such men.

M. FOSTER.

NOTES.

ADMIRAL SIR G. H. RICHARDS, whose death on Monday we regret to announce, earned the high esteem of men of science by his valuable hydrographical labours in various parts of the world. He was a scientific navigator, and during his life he contributed much important knowledge to marine surveying. The following particulars of his career are from an obituary notice in the *Times*:—Admiral Richards was born in 1820, and he entered the Navy in 1832. Three years later he was appointed as a midshipman in an expedition fitted out for a voyage of exploration and survey in the Pacific Ocean. He served for five years in the *Sulphur* during the surveys of the west coasts of South and North America, the Pacific Islands, New Guinea, and the Moluccas. As lieutenant on the *Philomel* he took part in a survey of the Falkland Isles in 1842, but circumstances arose which prevented the ship from completing the work. Later he was employed for four years surveying the coasts of New Zealand. Returning home in 1852, Commander Richards found an expedition fitting out for the Arctic regions, to continue the search for the missing ships under Sir John Franklin. He volunteered for and was immediately appointed to this service, sailing in command of the *Assistance* as second to Sir Edward Belcher in the Wellington Channel division of the expedition. While on this service he conducted several extended sledging expeditions, travelling more than 2000 miles over the frozen sea, and being absent from the ships on this duty for a period extending over seven months. Upon the return of the search party he was promoted to the rank of captain, and in 1856 he was appointed to the command of the *Plumper* for the survey of Vancouver Island and the coasts of British Columbia. He was employed for seven years in completing the surveys of Vancouver Island and the adjacent coasts, returning to England in 1863 by the islands of the Western Pacific, Australia, and Torres Straits, making surveys and carrying chronometric distances by the way. This voyage completed his third circumnavigation of the globe. On his arrival at home Captain Richards found himself appointed to the high post of Hydrographer of the Navy, and he discharged the duties of this responsible position for ten years, retiring in 1874. As was only natural, a man of the attainments and experience of Sir George Richards was welcomed and honoured by the principal scientific bodies. In 1866 he was elected a Fellow of the Royal Society, and in the same year a Corresponding Member of the Academy of Sciences of Paris. He was also a Fellow of the Royal Geographical Society. Nor did his energy permit him to relinquish active work on giving up the post of Hydrographer. After his retirement he occupied the position of managing director of the Telegraph Construction and Maintenance Company, and under his direction many thousands of miles of submarine telegraph cables were laid in various parts of the world. During his services at the Admiralty and subsequently he was a trusted adviser of several Administrations, and was a member of numerous Committees on confidential and general questions. He was also president of the Arctic Committee, which sat in 1875.

AN appeal is being made to the men of wealth in America to provide a suitable building for the societies composing the Scientific Alliance of New York. The combined membership of these societies is now over one thousand. Nearly all of them issue valuable publications; several of them possess important libraries and growing collections of specimens, and all are actively engaged in promoting original research. Burlington House partly provides for London scientific societies, but there is no building of like character in New York, though it is hoped that one will be provided by the enlightened liberality of private citizens.

THE meeting and journey to Brighton of motor-cars, arranged by the Motor-car Club as an inauguration of the appearance of those vehicles on highways under the sanction of the Act passed last Session, took place on Saturday, November 14. Fifty-four vehicles were entered for the run, but less than half of them were able to start, owing to the dense crowd of sight-seers in London and unfavourable weather. The distance to Brighton by the route followed is about fifty-five miles, over hilly country. The vehicles started at 10.30, but the crowd was so dense that they could only travel very slowly—about four miles an hour—over the first part of their course. The two Bollée cars were the first to arrive at Brighton, which they reached at 2.30 and 2.45 respectively. These did not, however, travel by way of Reigate, but went direct to Brighton, thereby saving several miles in point of distance, and the loss of time entailed by the crowded roads into and out of Reigate. Even when this is taken into account, their rate must have been sixteen or seventeen miles an hour. The Panhard car, which won the race from Marseilles to Paris, arrived at 3.46, and Mr. H. J. Lawson's car at 4.52, after which cars arrived every few minutes. Up to six o'clock thirteen cars had pulled up at their Brighton destination, and twenty arrived there without accident out of the twenty-two which left Brixton. The Panhard car, a phaeton of the British Motor Syndicate, and the "Present Times" car raced back from Brighton to London on Tuesday. The first of these covered the distance in three hours fifteen minutes, stoppages deducted—an average speed of sixteen miles an hour. The second car came in five minutes behind, and the third half an hour later. In connection with this subject, reference may be profitably made to the current number of *Industries and Iron*, dealing almost entirely with auto-cars and their development. One of the features of the number is a reprint of the paper on "Horseless Road Locomotion," read by Mr. A. R. Sennett at the Liverpool meeting of the British Association, accompanied by the many interesting illustrations shown at the meeting.

A complete edition of the works of Descartes, edited by Prof. Ch. Adams, of Dijon, and M. P. Tannery, of the Collège de France, is to be published under the auspices of the French Ministry of Public Instruction, in honour of the third centenary of the birth of that philosopher. The edition will contain not only Descartes' philosophical and scientific publications, but also five volumes of correspondence.

Dr. Percy Frankland, F.R.S., will read a paper on November 24, at the Institution of Civil Engineers, on "The Bacterial Purification of Water." In view of the controversy which has recently arisen on the bacteriological aspect of the County Council's report on the London Water Supply, the above paper should afford an appropriate opportunity for the discussion of various questions connected with water bacteriology.

The Sunday Lecture Society has arranged a short course of twelve lectures, to be given in St. George's Hall, Langham Place, on Sunday afternoons at 4 o'clock, commencing on November 29. Among the lecturers who have been engaged are Prince Kropotkin, Mr. Robert Wallace, M.P., Prof. Miall, F.R.S., Prof. Vivian B. Lewes, Prof. Norman Collie, F.R.S., Dr. Morris, C.M.G., Dr. C. W. Kimmins, Mr. Arthur Claydon, Rev. H. N. Hutchinson, Mr. Richard Kerr, and Mr. W. Herbert-Jones.

Referring to the note in last week's Nature, announcing a prize of £50 for the best treatise upon "the causes of the present obscurity and confusion in psychological and philosophical terminology, and the directions in which we may hope for efficient practical remedy," we are informed that the members of the Committee of Award to whom competing essays may be sent, are as follows:—Prof. Sully, 1 Portland Villas, East Heath Road, Hampstead, London, N.W.; G. F. Stout, University, Aberdeen, N.B.; Prof. Titchener, Cornell University, Ithaca, N.Y.; Prof. Kulpe, Wursburg, Germany. Arrangements are being made to add a French member to be Committee.

The *British Medical Journal* states that the Russian National Health Society has finally selected November 24 (December 6) as the date for the Jenner celebration. The numerous delays and postponements which have occurred, while they have been unfortunate in some ways, have enabled the Society to gather a more representative collection of exhibits than they could have done had the celebration been held earlier. Nearly all the foreign Governments to whom application was made have sent something of interest. Quite recently a friendly expression of good will was received in reply from Lord Salisbury, who stated that he had brought the matter before the Queen, and that her Majesty had been graciously pleased to present the Society with an engraved portrait of Lady Mary Wortley Montague, whose connection with small-pox prevention is well known to every one. This gift from the Queen is highly appreciated by the Society.

The *Times* correspondent at Buffalo reports that immediately after midnight on Sunday last, the machinery which has been erected at Niagara Falls for the production of electric power and its distribution, was set in motion; and the receipt of the power at Buffalo, twenty-six miles distant, was announced by a salute of artillery. The first Buffalo customer is the Buffalo Street Railway Company, supplying street conveyance for the entire city of 375,000 souls. This was originally worked by horses, and later by dynamos driven by local steam-engines. The latter are now superseded to the extent of 1000 horse-power out of a total of 7000 from the cataract of Niagara. The aggregate horse-power from Niagara already contracted for in Buffalo is 10,000; and many manufacturers are anxiously waiting to have their applications accepted. From this it is safe to predict that it is only a question of time, and no very great time, when all of the industries here requiring power will receive it from Niagara Falls, and that the twenty-two miles separating the two cities will be built solid with smokeless and teeming factories.

Prof. D. G. Elliot, the leader of the Field Columbian Museum of Chicago Expedition, and Mr. C. E. Akeby, his assistant, left Southampton on Saturday for New York by the *St. Louis* on their return from a most successful expedition into Somaliland, whither they went in March last for the purpose of making a natural history collection for the museum. In conversation with a representative of Reuter's Agency, Prof. Elliot said:—"I have obtained a very extensive collection, chiefly of the large mammals, probably the most complete ever brought out of any country by one party. No fewer than fifty-eight cases and barrels were shipped direct from Aden to Chicago, where they will arrive at the end of November. I obtained, moreover, over 300 specimens of birds, fish, insects, and reptiles."

In an interview with a representative of Reuter's Agency, M. de Gerlache, the lieutenant in the Belgian Navy who is the organiser and leader of the projected Belgian Antarctic expedidition, stated that the expedition is to start from Antwerp on or about July 15 next, in the steamer the *Belgica*, which at present is lying at Sande Fiord, in Norway. The vessel will have to undergo extensive alterations before she enters on her voyage, especially with a view to securing her against ice-pressure; and a laboratory is to be constructed on the deck for the use of the scientific members of the expedition. The *Belgica* will carry a three-years' supply of provisions, a considerable portion of the preserved food having been specially prepared for the expedition. The scientific staff will consist of M. Archowsky, a Belgian geological chemist, who is attached to the General Institute of Chemistry at Liège; M. Danco, a Belgian artillery lieutenant, to whom the magnetic and meteorological observations will be entrusted; M. Racovitza, who will conduct the dredging operations; and M. Taguin, a Belgian, who, in addition to his duties as doctor to the expedition, will assist the other scientific members in their work. The members of the expedition will devote themselves more especially to geological and zoological research. They will determine the sea temperature at different depths, and, in short, aim at making researches similar to those made by the *Challenger* and in other Antarctic expeditions.

The Russian Geographical Society has received a very interesting piece of news from Sven Hedin, the Swedish explorer, who now completes already his second year of travels in Central Asia. He went in December last from Kashgar to Khotan, and from this town he undertook the exploration of the part of the Gobi Desert which is known under the name of Takla Sands. There he discovered the ruins of two cities, one of which was very big, and now strikes the traveller by the purely Indian character of its ruins. Following the banks of the Keria River northwards, Sven Hedin crossed the desert, meeting on his way with a tribe, entirely isolated from all communication with the outer world; and finding full herds of the wild camel, of which he secured three specimens. Then, after an eight days' march, he reached the region where the Chinese maps place Lake Lob-nor, and which is situated to the north of the lake which was first visited by Przevalsky, and was described by him as the Lob-nor, going since on our maps under this name. Traces of an immense lacustrine basin, partly covered with woods and thickets, were discovered by Hedin in the region assigned to Lob-nor by the Chinese maps, as well as several lakes, which were filled up, nine years ago, by the waters of the Tarim River, as its bed seems to have been obstructed by sands, and it consequently began to flow northwards. We thus have two separate lacustrine basins, the Northern and the Southern Lob-nor, which are in mutual dependency, and, both being fed by the Tarim, alternately receive its waters.

SOME little time ago (August 27, p. 402) the announcement was made in these columns that Prof. J. C. Ewart had succeeded in obtaining a male hybrid between a male Burchell's zebra (*Equus Burchelli*) and a mare (*E. caballus*). A full description of the animals, with illustrations, appears in the November number of *The Veterinarian.*

REFERRING to the strange purple patches on pavements, described by Miss A. Pedder in last week's NATURE, two correspondents suggest that they are produced by the aniline colour of fragments of so-called copying-ink pencils, dropped in the process of sharpening, or broken off while the pencils were being used.

THE Annual "Cryptogamic Botanical" meeting of the Essex Field Club will be held on Saturday next, at Chingford. The objects of search will be mainly the smaller fungi and the Mycetozoa, under the direction of Mr. Arthur Lister and Dr. M. C. Cooke. Those wishing to attend should communicate with Mr. W. Cole, Buckhurst Hill, Essex.

A CIRCULAR announces to us the formation of the British Mycological Society, having for its objects the study of mycology in all its branches, systematic, morphological and pathological, the publication of annual reports recording all recent discoveries in any branch of mycology, and more especially giving a brief synopsis of the work of European mycologists and the recent additions to the British Fungus Flora. An annual week's meeting or foray will be held at some place previously determined at the annual meeting. Mr. George Massee, Royal Herbarium, Kew, has been elected first President, and Mr. Carleton Rea, 34 Foregate-street, Worcester, is the Secretary. The first meeting of the Society will be held in Sherwood Forest, commencing on the third Monday in September 1897.

LORD WALSINGHAM and his Zoological Secretary, Mr. J. H. Durrant, have published a pamphlet entitled, "Rules for Regulating Nomenclature, with a view to secure a strict application of the law of priority in entomological work." The subject of zoological nomenclature has been a vexed question for half a century, and, if we may judge from the amount of discussion that has recently occurred, we must conclude that zoologists are still far from agreement as to the best means for attaining the object they so much desire, viz. a set of cosmopolitan and permanent names for all kinds of animals. Lord Walsingham has not, we believe, hitherto expressed any formal opinion on the subject; and as he has for many years devoted great attention to one of the most extensive and difficult departments of zoology, his opinions will no doubt receive full consideration from other naturalists. The point most prominent in this pamphlet is the method of treating the names of genera. No doubt this, as well as other details, will be fully discussed elsewhere.

THE identification of the individual, with special reference to the system in use in the office of the Surgeon General of the United States Army, is the subject of a communication by Dr. C. H. Alden in the September number of *The American Anthropologist.* The method adopted consists solely of noting scars or other marks on outline diagrams representing the front and back view of a nude man. Scars form the most important group, and are arranged first as to location *L. B. head* (left back head), *R. B. head*, &c.; then according to height of subject, those upon individuals under 67 inches being placed together. Then come the tattoos, which are similarly classified according to regions, and subdivided by heights; and so on. The first classification is of course racial, whether white or coloured. The system is claimed to be specially adapted for army use, from its simplicity and facility of application. No apparatus and no camera, or elaborate personal description is required. The main object of identification is to detect deserters, and to prevent repeated enlistment. The author states that the Bertillon system requires more time than can ordinarily be given to each recruit at his examination, and there is the difficulty of the transport of apparatus. The success which has attended the use of the army system, covering a period of nearly six years, is perhaps the best proof of its value.

A DESTRUCTIVE cyclone was experienced in the Gulf of Aden on October 14, and the reports of the storm already to hand show that the disturbance is of considerable interest from a meteorological point of view. Cyclones are of very rare occurrence in the Gulf, and the storm of last month is probably the only instance of such an occurrence at this season in recent years. The disturbance was evidently travelling approximately from east to west, and must have been met with by many vessels either in the Arabian Sea or the Gulf of Aden. A discussion of the storm would be interesting, and any observations forwarded to the Royal Meteorological Society, 22 Great George Street, Westminster, will be used for tracing the development and movement of the disturbance.

THE Washington Weather Bureau has issued a pamphlet containing replies to some questions referred to the recent Meteorological Conference at Paris, and giving an account of the methods of extending meteorological observations in the interest of agriculture. By a liberal use of the telegraph and the co-operation of the Postal Service, the dissemination of weather forecasts has steadily increased until at the present time they are exhibited in more than 30,000 places. One of the simplest and most effective means of making the forecasts known consists in telegraphing them to a central point, and duplicating the messages, by using the Government franked postal cards, to all places that can be reached in useful time. A simple printing outfit, consisting of rubber logotypes with hand-stamp, is sufficient for the purpose. A novel means has also been lately tried with some degree of success, viz. the utilisation of the post-office stamp for dating the time of receipt of letters, &c., at the office of destination, by combining the weather forecast with the stamp showing the name of the receiving office, &c. Thus the recipients of the letters get the weather forecast at practically no additional cost of labour to the post-office officials. The issue of the Daily Weather Map is very speedily done by what is called the chalk-plate printing process. It consists of a steel plate, covered with specially prepared chalk, making a surface suitable for receiving the curves and symbols representing the conditions of weather. The plate when thus prepared is stereotyped in the usual way, while the text is rapidly made up by the use of logotypes.

IN the *Atti dei Lincei*, Dr. Uberto Dutto describes an interesting series of observations performed with a D'Arsonval calorimeter on the common marmot and other animals. According to the ordinary law of dimensions, the quantity of heat radiated from the skin of an animal at a given temperature should be proportional to the square of its linear dimensions, but Dr. Dutto finds that the emission of heat is considerably greater from the marmot than from a rabbit of the same size and colour; although the temperature of the former is four or five degrees lower than that of the latter. It is suggested that these circumstances explain why the marmot and certain other mammals hybernate in winter. With the fall of temperature the vitality of the animal becomes insufficient to keep up the necessary supply of internal heat, and a period of torpor ensues.

IN a recent number of the *Johns Hopkins Hospital Bulletin* Dr. Robert Randolph gives an account of some investigations he has been carrying out on the use of absolute alcohol as a disinfectant for surgical instruments. The use of absolute alcohol as a germicide is not new. Fürbringer was the first, in a pamphlet published in 1888, to call attention to its value as a disinfectant for the hands, and Reinicke has confirmed these observations, as well as, more recently, Krönig, Ahlfeld, and Schaefer. Dr. Randolph is of opinion that although under ordinary conditions instruments may with advantage be disinfected by means of absolute alcohol, yet should pyogenic organisms be present in large numbers in any operation, this mode of sterilisation cannot with safety be resorted to.

TWO or three months ago a St. Petersburg medical review, *Vrach*, inserted a letter from a Russian doctor, M. Denisenko, who earnestly entreated his colleagues to experiment upon the sap of the Wart-wort, *Chelidonium majus*, Linn., as a possible remedy for the treatment of cancer. The sap of this plant is widely used in Russian popular medicine, as it is also in this country, for making warts disappear. Having tried for some time to use it externally against cancer-growths, M. Denisenko, came to the use of a preparation of the *Chelidonium* sap, which he rendered public, as an internal remedy. After a prolonged use in very small doses, this preparation seemed to make the cancer growths disappear. Now the same review (No. xxxiv., August 25, September 6) contains a paper, by the Russian doctor, in which the history of seven cases of cancer are given, four being cases of external growths in such places of the body as rendered surgical operations of no use, and three cases being internal-growth in the œsophagus and the stomach. The former are illustrated by photographs, from which it would seem that the effects of the above-mentioned internal treatment are simply astonishing. The growths have totally disappeared. As to the cancer-growth in the œsophagus, it has so much diminished that the patient, who formerly could swallow liquid food only, can now swallow chopped meat, bread, and hard-boiled eggs, while no more traces of a swelling are to be found in the œsophagus. This appears to be the first case on scientific record of cancer-growths having been made to disappear by the use of internal remedies only. Of course, it has to be ascertained whether the growths will not re-appear; and moreover, as the *Chelidonium* sap contains two deadly alkaloids, the chelidonine and the sangui-pyrine, it has to be seen whether its continued use, even in small doses, will not tell in the long run. It hardly need be added that, owing to the poisonous nature of the remedy, it must, in no case, be used without the prescription of a medical man. Cases of *Chelidonium* poisoning are not uncommon in popular medicine. Dr. Denisenko concludes by appealing for further experiments, in such cases where surgical operation is not possible.

THE *Kew Bulletin* for September–October records the successful growth in Queensland of a new seedling variety of the sugar-cane, derived originally from seed obtained from Barbadoes.

INTEREST in Arctic matters is so keen at the present time, that many people will probably be glad to have their attention directed to the second part of a paper on the glacial geology of Arctic Europe and its Islands, which Colonel H. W. Feilden contributes to the current *Quarterly Journal* of the Geological Society. The paper refers to proofs of changes of level in northern Norway, terrace-making in Kolguev Island, glacial geology of the Kola Peninsula, Novaya Zemlya, Franz Josef Land, and Spitzbergen. Another paper of general interest in the same number of the *Journal* is on seismic phenomena in the British Empire, by M. F. de Montessus de Ballore.

IN the third part of the first volume of the *Centralblatt für Anthropologie, Ethnologie und Ungeschichte*, in addition to the usual valuable epitome of recently published papers, there is a short original article by Prof. Aurel von Török, of Budapest, on some characteristic differences between human and animal skulls. The author looks at the skulls from above, in front, sideways and behind, and by observation, and entirely without taking measurements, he notes that the relative position of certain parts is distinctly human or characteristically animal; he gives technical names to these different conditions.

THE November Pilot Chart of the North Pacific Ocean, issued by the U.S. Hydrographic Office, contains an account of the chronological and geographical distribution of icebergs in the Southern and Antarctic Oceans, accompanied by two charts, one showing the seasonal iceberg limits, and the other the icebergs reported in the different seasons during the years 1891–5. An inspection of the charts seems to show that the bergs are formed at special parts of the Antarctic continent, and are then drifted northward and easterly, the principal groups of bergs being in the vicinity of Cape Horn, the Falkland Islands, and South of Africa, while the limits differ with the seasons. The life of a berg in the southern oceans is probably much longer than of one in the northern oceans, as they are larger and more compact, and drift to lower latitudes in the South Atlantic than those in the North Atlantic.

THE Rev. Johann G. Hagen, Director of the Observatory of Georgetown College, Washington, has rendered good service to mathematicians by preparing a complete catalogue of the works of Leonard Euler. Although several catalogues of this mathematician's works have previously been published, it was found that the information contained in these was in some respects fragmentary and incomplete in regard both to the exact titles of the papers, and to the dates of their publication. The present catalogue is divided into four sections, dealing with mathematical, physical, astronomical, and miscellaneous works respectively; and an idea of the magnitude of Euler's work may be gathered from the fact that no less than 796 memoirs and notes are included in this catalogue. The publisher is Felix L. Dames, of Berlin.

THE first issue of the *Academy*, published on October 9, 1869, contained a review of Dr. Haeckel's "Natural History of Creation," by Huxley. In the more than a quarter of a century which has elapsed since then, science has not figured very prominently in the pages of our contemporary, but it has been given a place, and Tyndall, as well as Huxley, have shone in that place. Because of this memory we have pleasure in calling attention to the entirely new issue of the *Academy*, begun by the current number (November 14). It is proposed to widen the scope of the interests and influence of the paper; but whether the changes will mean increased attention to science, it is difficult yet to decide. At present the expansion seems to be confined to the limits of a page of science notes.

We have received from Messrs. C. W. Faulkner and Co., the well-known artistic colour printers, some specimens of their new parlour games, together with numerous samples of their Christmas and New Year cards and calendars. In the case of the first-named, this firm has hit upon some ingenious games which combine both amusement and scientific skill, and which can be played by both the old and the young with delight. Of these we may mention the game entitled, "Attracto" or "Catch 'em," which is a novel form of fish-ponds. In place of the hook a magnet is employed, by which one must catch in a prescribed way small metal fish. "Nurky," or the game of "Ducks and Drake," also requires some skill in manipulation, and is a good round table game. Perhaps the most striking feature about the cards, in addition to their artistic nature, is the excellence of the process illustrations; the subjects being both well chosen and of a varied nature. An excellent series of new publications, both in photogravure and platinotype, in most cases well worth framing, are also issued, the types of which are both humorous and sedate. Mention must also be made of the many different styles of calendars for the coming year, for all of them are very attractive.

We have on our table new editions of several scientific works. From Messrs. Longmans, Green, and Co. has come the third edition of Dr. Augustus D. Waller's "Introduction to Human Physiology." The principal changes in this edition are in the chapters on nerve and animal electricity, the results described in this year's Croonian lecture at the Royal Society having been incorporated. The same publishers have just issued a second edition of "The Life and Letters of George John Romanes," written and edited by his wife. To the new issue of Stanford's compendium of geography and travel, another volume by Mr. A. H. Keane has been added. The volume is on Southern and Western Asia, and like the one on Northern and Eastern Asia, published a short time ago, it forms an admirable work for reading and reference. A revised edition (the third) of "A New Course of Practical Chemistry," by Mr. John Castell-Evans, has been published by Mr. Thomas Murby. The course covers the principles of qualitative and quantitative analysis, and comprises a systematic series of experiments and problems for the laboratory and class-room. "The book is intended," says the author, "to help students to attain a real knowlege of scientific chemistry, and not to prepare for mere examinations." Certainly the student who performs all the experiments in the book, and works out all the numerical problems, will advance his knowledge considerably. So long ago as 1872, the first edition of "A Junior Course of Practical Chemistry," by Mr. Francis Jones, was published by Messrs. Macmillan and Co. It speaks much for the character of this little volume that in general arrangement, and in the prominence given to experimental work on the principles of chemistry, the course followed much the same lines as that adopted only last year by the Science and Art Department as suitable for chemical laboratory practice. The eighth edition now published will, no doubt, be widely adopted in departmental classes, and it may be introduced with advantage into all schools and colleges where elementary practical chemistry is taught.

In the current number of the *Berichte*, Prof. Victor Meyer records some remarkable observations which he has recently made on the oxidation of hydrogen and carbon monoxide. It has been long known that these gases, even when pure, are slowly absorbed by a solution of potassium permanganate. The process has hitherto been regarded merely as one of slow oxidation, presenting no special feature of interest. But in the attempt to devise an apparatus for the exact study of the change, a remarkable fact came to light. It was found that an acidified solution of the permanganate, when continuously shaken with either hydrogen or carbon monoxide in a closed vessel, absorbed these gases, and was reduced, but that at the same time a large volume of oxygen was liberated. It was proved by a series of experiments that the evolution of oxygen in the quantity observed was in some way dependent on the oxidation process, for the permanganate solution evolved a comparatively small amount of oxygen when agitated in an indifferent gas or *in vacuo*. Without committing himself to a final opinion, Prof. Meyer can, at present, suggest no other tenable explanation of the phenomenon than that in the slow oxidation process one atom only of each molecule of oxygen yielded by the permanganate is used for oxidation, the unused halves of the molecules being set free and combining to form fresh molecules of oxygen gas. This view is in reality the same as that to which van 't Hoff has been led by the study of other less simple cases of slow oxidation. The scheme would be as follows:—

$$\begin{array}{|l|l}H_2\ O & O\\ \multicolumn{1}{c}{+} & \\ H_2\ O & O\end{array} = 2H_2O + O_2.$$

The quantitative results, so far as they go, offer some support to this view; but a further study of the question is in progress, and the results will be awaited with great interest.

The additions to the Zoological Society's Gardens during the past week include a Diana Monkey (*Cercopithecus diana*), a Campbell's Monkey (*Cercopithecus campbelli*) from West Africa, presented by Mrs. Skottowe; a Macaque Monkey (*Macacus cynomolgus*, ♀) from India, presented by Mrs. Monillot; a Himalayan Bear (*Ursus tibetanus*, ♂) from India, presented by Mr. Alfred W. Alcock; a Virginian Opossum (*Didelphys virginiana* from North America, presented by Mr. Edward Johnson; a Great Eagle Owl (*Bubo maximus*), European, deposited; a Green-cheeked Amazon (*Chrysotis viridigena*) from Colombia, a Malaccan Parrakeet (*Palæornis longicauda*) from Malacca, purchased; a Cocteau's Skink (*Macroscincus cocteaui*) from the Cape Verde Islands, a Gay's Frog (*Colyptocephalus gayi*) from Bolivia, received in exchange.

OUR ASTRONOMICAL COLUMN.

Partial Impact of Celestial Bodies.—We have received from Prof. A. W. Bickerton, of the New Zealand University, a collection of papers which he has published on his theory of partial impact. This theory, he says, gives "a perfectly simple explanation of the origin of temporary, variable and double stars, and accounts for all their peculiarities. It explains the formation of multiple stars, star clusters, and also the mode of evolution of every definite form of nebula . . ."

As for the theory itself, something may be said in its favour. The author has grasped the fact that enormous masses of incandescent matter cannot cool practically in a few weeks, and his hypothesis explains satisfactorily the phenomenon of new stars. "A typical new star is probably a thousand times as bright as our sun; it appears suddenly and disappears in a year . . . The formation of such a body is difficult enough to explain on any theory except that of impact, but to explain its disappearance is more difficult still. It is estimated that it will take the sun ten million years to lose half its lustre. Think of a sun a thousand times as bright cooling in a year. The idea is absurd." Prof. Bickerton suggested his idea of partial impact as long ago as 1879, and it certainly strengthens the hypothesis put forward by Mr. Norman Lockyer, that some stars are not stars like our sun, but masses of meteorites, which in the case of new stars and variables collide with one another.

This hypothesis was suggested in the year 1877, and in a paper read before the Royal Society on April 16, 1891, entitled